LANSCE
Los Alamos Neutron Science Center

Research Proposal for the use of Neutron Science Facilities

☐ **Fast Access** ☐ **Joint CINT Proposal**

Proposal Number: 20111525
Submission Number: S1552
Date Received: 03/09/11

Program Advisory Subcommittee: Defense-related Nuclear Science
Focus Area:

Flight Path/Instrument: 4FP60R / GEANIE
Estimated Beam Time (days): 14
Days Recommended: 0
Dates Desired: First 2 weeks of beam time
Impossible Dates: any other

TITLE
GEANIE development and "shakedown"

☐ Continuation of Proposal #:

☐ Ph.D Thesis for:

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RESEARCH AREA

- ☐ Biological and Life Science
- ☐ Chemistry
- ☐ National Security
- ☐ Earth Sciences
- ☐ Engineering
- ☐ Environmental Sciences
- ☒ Nuc. Physics/chemistry
- ☐ Astrophysics
- ☐ Few Body Physics
- ☐ Fund. Physics
- ☐ Elec. Device Testing
- ☐ Dosimetry/Med/Bio
- ☐ Earth/Space Sciences
- ☐ Materials Properties/Test
- ☐ Other:
- ☐ Mat'l Science (incl Cond Matter)
- ☐ Medical Applications
- ☐ Nuclear Physics
- ☐ Polymers
- ☐ Physics (Excl Condensed Matter)
- ☒ Instrument Development
- ☒ Neutron Physics
- ☐ Fission
- ☐ Reactions
- ☒ Spectroscopy
- ☐ Nuc. Accel. Reactor Eng.
- ☒ Def. Science/Weapons Physics
- ☐ Radiography
- ☐ Threat Reduction/Homeland Sec.
- ☐ Other:

FUNDING AGENCY

- ☐ DOE/BES
- ☐ DOE/OBER
- ☒ DOE/NNSA
- ☐ DOE/NE
- ☐ DOE/SC
- ☐ DOE/Other
- ☐ DOD
- ☐ NSF
- ☐ Industry
- ☐ NASA
- ☐ NIH
- ☐ Foreign:
- ☐ Other US Gov't:
- ☐ Other:

PUBLICATIONS

Publications:

this field should not be mandatory

Abstract: S1552_GEANIE_shake.pdf

By electronic submission, the Principal Investigator certifies that this information is correct to the best of their knowledge.

Safety and Feasibility Review *(to be completed by LANSCE Instrument Scientist/Responsible)*

☐ **No further safety review required** ☐ **To be reviewed by Experiment Safety Committee**

☐ **Approved by Experiment Safety Committee, Date:**

Recommended # of days:	**Change PAC Subcommittee and/or Focus Area to:**	**Change Instrument to:**

Comments for PAC to consider:

Instrument scientist signature: **Date:**

Printed 4:41 PM, April 5, 2011

GEANIE Upgrade/Development/Shakedown: 2011

In 2010 we ran a full slate of experiments at GEANIE, despite some persistent issues. As usual, we request up to two weeks of beamtime at the beginning of the run cycle to (a) fix any problems that may arise, (b) make some improvements to the hardware, and (c) make some improvements to the software.

As background, we list here the outage tasks (i.e., prior to beam) being performed on GEANIE:

1) all of the detectors are being annealed;
2) the UPS batteries are being replaced;
3) the CAMAC fans (only some of which work) are all being replaced with new, faster units;
4) all of the amplifiers and CAMAC modules are being cleaned of dust (after the construction is substantially complete);
5) the Ge detectors will be put back in place and the array cooled down, using sources to check that everything is working properly.

In addition, we intend to finally upgrade the ECL readout electronics with new, VME ECL distribution boxes and new ECL cables, to eliminate various issues in the FERA readout. Testing this new arrangement requires some real beam data.

We have made substantial progress in writing an off-line, MIDAS-based analysis code for GEANIE data, and intend to incorporate some of its features into the on-line GEANIE display code to make more information available online and to speed data analysis. Again, we real beam and realistic rates to fully test such code improvements.

The two week request is an upper limit, and we intend to proceed to actual experiments as soon as possible.